Complete Summary

GUIDELINE TITLE

Secondary prevention of coronary artery disease.

BIBLIOGRAPHIC SOURCE(S)

University of Michigan Health System. Secondary prevention of coronary artery disease. Ann Arbor (MI): University of Michigan Health System; 2009 Mar. 11 p.

GUIDELINE STATUS

This is the current release of the guideline.

** REGULATORY ALERT **

FDA WARNING/REGULATORY ALERT

Note from the National Guideline Clearinghouse: This guideline references a drug(s) for which important revised regulatory and/or warning information has been released.

- July 1, 2009 - Chantix or Champix (Varenicline) and Zyban or Wellbutrin (bupropion or amfebutamone): The U.S. Food and Drug Administration (FDA) notified healthcare professionals and patients that it has required the manufacturers of the smoking cessation aids varenicline (Chantix) and bupropion (Zyban and generics) to add new Boxed Warnings and develop patient Medication Guides highlighting the risk of serious neuropsychiatric symptoms in patients using these products. These symptoms include changes in behavior, hostility, agitation, depressed mood, suicidal thoughts and behavior, and attempted suicide.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Coronary artery disease

GUIDELINE CATEGORY

Prevention

CLINICAL SPECIALTY

Cardiology
Family Practice
Internal Medicine

INTENDED USERS

Advanced Practice Nurses
Nurses
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

To improve secondary prevention of coronary artery disease (CAD) by assembling in one location core recommendations for the actions that should be taken or considered

TARGET POPULATION

Adults with coronary artery disease (CAD), CAD equivalent such as diabetes, other atherosclerotic vascular disease, or a risk factor calculation of greater than 20% for a future CAD event

INTERVENTIONS AND PRACTICES CONSIDERED

Prevention

1. Smoking cessation
2. Antiplatelet agents and anticoagulants
3. Blood pressure control
4. Lipid management
5. Beta-blockers
6. Renin-angiotensin-aldosterone system blockers
7. Diabetes management
8. Pain control

9. Depression screening
10. Physical activity
11. Weight management
12. Nutrition
13. Immunizations

MAJOR OUTCOMES CONSIDERED

- Subsequent cardiovascular events
- Mortality

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The overview of secondary prevention recommendations was assembled from existing guidelines. The University of Michigan Health System (UMHS) has already developed guidelines addressing many of the components of secondary prevention (i.e., smoking cessation, hypertension, lipid management, diabetes mellitus, immunizations). The American Heart Association (AHA) and the American College of Cardiology (ACC) have also developed guidelines addressing overall secondary prevention of coronary artery disease (CAD) and specific components of preventive care. The search for evidence and recommendations focused on guidelines of these organizations published since 2000. The search was supplemented with very recent clinical trials known to expert members of the panel. Negative trials were specifically sought.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of Evidence

A. Randomized controlled trials
B. Controlled trials, no randomization
C. Observational trials
D. Opinion of expert panel

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Consensus of the guideline team after reviewing the evidence and discussion

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Strength of Recommendation

I = Generally should be performed

II = May be reasonable to perform

III = Generally should not be performed

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

University of Michigan Health System (UMHS) guidelines are reviewed by leadership and in clinical conferences of departments to which the content is most relevant. This guideline was reviewed by the Division of Cardiovascular Medicine, Department of Emergency Medicine, Department of Family Medicine, Division of General Medicine, and Division of Geriatric Medicine.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Note from the National Guideline Clearinghouse (NGC): The following key points summarize the content of the guideline. Refer to the original guideline document for additional information.

The levels of evidence [A-D] and strength of recommendation [I-III] are defined at the end of the "Major Recommendations" field.

High risk patients. This high-risk population should receive intensive secondary prevention interventions, as these interventions offer large absolute risk reductions for subsequent cardiovascular events and mortality *[IA]*.

Secondary prevention. Table 1 summarizes secondary prevention recommendations for patients with coronary and other vascular disease in general order of descending relative risk reduction:

- Smoking cessation
- Antiplatelet agents and anticoagulants
- Blood pressure control
- Lipid management
- Beta -blockers
- Renin-angiotensin-aldosterone system blockers
- Diabetes management
- Pain control (caution with non-steroidal anti-inflammatory drugs [NSAIDs])
- Depression screening
- Physical activity
- Weight management
- Nutrition
- Immunization
- Supplements

Table 1. Recommendations for Secondary Prevention of Coronary Artery Disease (CAD)

Smoking Cessation Goal: Complete Cessation	Ask about smoking status and document in medical record regularly *[IC]*. Advise quit attempt *[IA]* and assess willingness. Assist with a quit plan *[IC]*, consider pharmacological interventions, educate, and follow-up as quitting often requires multiple attempts. Counseling can assist a patient in quitting with or without pharmacological therapy *[IA]*. Pharmacological therapy *[IA]* is used to reduce nicotine withdrawal symptoms and includes:

	1) nicotine replacement, 2) bupropion hydrochloride, and 3) varenicline (On 2/1/2008 the Food and Drug Administration [FDA] issued an alert regarding serious neuropsychiatric symptoms occurring in patients taking varenicline, but it still continues to be considered first line therapy). Nicotine transdermal formulations are contraindicated in patients with arrhythmias, worsening angina, severe angina, and within 2 weeks of myocardial infarction. It is recommended to use them with caution in patients with CAD.
Antiplatelet Agents and Anticoagulants	In patients with established CAD, aspirin should be prescribed at a dose of 81-162 mg daily *[IA]*. (See text in the original guideline document regarding those with coronary event while already on aspirin.) In patients with recent acute coronary syndromes who are treated with medical therapy, the addition of clopidogrel should be considered at a dose of 75 mg daily for at least 1 month *[IA]* and ideally up to 1 year post-event. NSTEMI (non-ST-elevation myocardial infarction) *[IA]*, STEMI (ST-elevation myocardial infarction) *[IIC]*. Benefit of prolonged dual therapy is not proven. Clopidogrel at a dose of 75 mg daily (or ticlopidine) should be considered indefinitely in those patients with established coronary artery disease who are intolerant of aspirin *[IA]*. <u>Following stent placement</u>: Aspirin should be used at a dose of 162 to 325 mg daily for at least 1 month after a bare-metal stent, 3 months after a sirolimus-eluting stent, and 6 months after a paclitaxel-eluting stent. After that period of time, the dose of aspirin can be reduced to 75 to 162 mg daily but continued indefinitely *[IA]*.

	Clopidogrel at a dose of 75 mg daily should be prescribed for at least 4 weeks after a bare-metal stent, but ideally up to 1 year. For drug-eluting stents, clopidogrel should be used at a dose of 75 mg daily for 1 year *[IB]*. Continuation of clopidogrel beyond 1 year may be considered in patients at low-risk for bleeding and high-risk for late stent thrombosis *[IID]*.
Blood Pressure Control Goal: <135/80 more aggressive control may be warranted, particularly for renal disease	A general blood pressure (BP) goal of <135/80 is reasonable based on available data. Few studies have targeted or achieved systolic BP below 140 mmHg, so recommendations for systolic BP goals are largely based on extrapolations and expert opinion. The Joint National Commission on Prevention, Detection, and Treatment of High Blood Pressure (JNC7) recommended a goal of BP <140/90 mmHg in patients with coronary artery disease (CAD) and a lower BP goal (<130/80 mmHg) in patient with diabetes mellitus or proteinuric kidney disease. Published trials, some after JNC 7, provide some support for a BP goal less than 130/80 mm Hg in patients with atherosclerotic cardiovascular disease. A similar BP goal was recommended in the 2007 American Heart Association statement on the treatment of blood pressure in ischemic heart disease and the 2007 European Society of Hypertension/European Society of Cardiology guidelines on the management of hypertension. For patients not at target, recommend initiation of lifestyle modification and blood pressure medications *[IA]*. Useful lifestyle interventions include sodium reduction, weight control, increased physical activity, and alcohol moderation. First line agents beta-blockers, angiotensin-converting enzyme inhibitor (ACE-I) or angiotensin-receptor blocker (ARB), and thiazides to achieve goal.
Lipid Management Goal: Low-density lipoprotein cholesterol (LDL-C) ≤ 100 If at very high risk, <70 mg/dl is a	Obtain a full fasting lipid panel (total cholesterol, LDL-C, high-density lipoprotein cholesterol (HDL-C), and triglycerides) *[IA]*. Assess and recommend lifestyle modification

reasonable therapeutic option	when indicated *[IA]*. Assess the patient for secondary causes of lipid disorders and optimize if identified. LDL-C should be less than 100 mg/dL *[IA]*, further reduction to LDL-C<70 mg/dL is reasonable *[IIA]*. If baseline LDL-C is 70-100 mg/dL, it is reasonable to treat to LDL-C<70 mg/dL *[IIA]*. Consider statin therapy for all patients – moderate potency statin even if low LDL-C *[IA]*. (**Note**: in diabetes mellitus (DM) patients age <40 with no other coronary heart disease (CHD) risk, statin is only marginally cost-effective.) Non-statin lipid agents (fibrates, Niacin, resins, ezetimibe) have less or no evidence for improved outcomes compared to statins *[IA]*. Combination therapy (statin + any other lipid agent) improves lipids, but may increase myopathy risk, and has not yet been shown to improve outcomes compared to statins *[IIC]*. **Note**: use of resins relatively contraindicated if triglycerides ≥ 200 mg/dL.
Beta-blockers	It is beneficial to start and continue oral beta-blocker therapy indefinitely in all patients who have had a myocardial infarction, acute coronary syndrome, or left ventricle dysfunction with or without heart failure symptoms, unless contraindicated *[IA]* unstable angina (UA)/NSTEMI *[IB]*. Patients with moderate or severe left ventricular (LV) failure should receive oral beta-blocker therapy with a gradual titration scheme (carvedilol, metoprolol succinate, bisoprolol) *[IB]*. Prescribing beta-blockers is reasonable for low-risk patients (i.e., normal left ventricular function, revascularized, no high-risk features) recovering from UA/NSTEMI in the absence of absolute contraindications *[IIA]*. (see text in the original guideline document

	for cautions regarding beta-blocker use in the acute setting)
Renin-angiotensin-aldosterone system blockers	ACE inhibitors are first line therapy in all patients who have: heart failure or asymptomatic left ventricular dysfunction (left ventricular ejection fraction [LVEF] ≤ 40%); ST elevation myocardial infarction (MI); in non-ST elevation MI with anterior infarct, diabetes, or systolic dysfunction; proteinuric chronic kidney disease; or severe left ventricular hypertrophy *[IA]*. The data support a similar effect for angiotensin-receptor blocker's in all these settings (STEMI *[IA]*, UA/NSTEMI *[IIA]*). ACE inhibitors are reasonable for patients recovering from unstable angina or NSTEMI in the absence of left ventricular dysfunction, hypertension or diabetes mellitus, unless otherwise contraindicated. The data for benefit are mixed *[IIA]*. In patients with either symptomatic heart failure or diabetes mellitus, prescribe long-term aldosterone receptor blockade for unstable angina or acute coronary syndrome patients without significant kidney dysfunction (estimated creatinine clearance should be greater than 30 mL per min) or hyperkalemia (potassium should be less than or equal to 5 mEq per liter) who are already receiving therapeutic doses of an ACE inhibitor, and have an left ventricular ejection fraction less than or equal to 40% *[IA]*. *(See caution in text in original guideline document.)*

Diabetes Management
Goals:
 	
• Check LDL annually
• Consider statin
• BP ≤ 130-135/80
• Smoking status and cessation
• Glycemic control:
  • Tight for Type 1 (Glycosylated Hemoglobin [HbA1c] <7%)
  • Reasonable for Type 2 (level debatable),
	Check lipid profile- fasting or with direct LDL- annually
	
	Prescribe moderate dose statin (e.g., generic simvastatin 40 mg po daily) *[IA]*. In patients <40 years of age and without CAD, statins are optional.
	
	Goal LDL <100 mg/dL recommended *[IA]*; lower target levels not yet clearly defined in trials. (See lipid section above.)
	
	Target blood pressure ≤ 130-135ƒ‡/80 *[IA]*.
	
	Check smoking status annually and

consider < 8%	recommend nonsmoking, educate and encourage cessation *[IC]*. Tight glycemic control in Type I diabetes *[IA]*. Glycemic control has not been of proven benefit in prevention of macrovascular complications of Type 2 diabetes. The target level is under debate and less stringent goals might be appropriate. For individuals with CAD, Healthcare Effectiveness Data and Information Set (HEDIS) is recommending a level < 8%, although no new data to guide this specific recommendation. In patients with Type 2 diabetes and microvascular complications or other compelling comorbidities, tight control (HbA1C < 7%) is recommended.
Pain Control	At the time of admission for acute coronary syndrome discontinue all cyclooxygenase-2 inhibitors (COX-2) inhibitors and non-steroidal anti-inflammatory drugs, EXCEPT aspirin as above *[IC]*. In patients with established CAD requiring analgesia, COX-2 inhibitors and non-steroidal anti-inflammatory drugs with COX-2 activity should be avoided whenever possible *[IC]*. To minimize risk, a stepwise approach to pain management is recommended (see text in the original guideline document).
Depression Screening	Screen patients with CAD for depression *[IB]*. Care providers should treat or refer when indicated. Patients often present with somatic complaints. Initial screening can be performed by asking: During the past month, have you been bothered by: • Little interest or pleasure in doing things? • Feeling down, depressed or hopeless? If the patient responds "yes" to either question, consider more detailed

	assessment.
Physical Activity	Assess risk with a physical activity history and/or exercise test to guide prescription *[IB]*. Encourage 30-60 minutes of moderate intensity aerobic activity on 5-7 days per week, supplemented by an increase in daily lifestyle activities *[IIB]*. Encourage resistance training 2 days per week *[IID]*. Advise medically supervised programs for high risk patients (e.g., recent acute coronary syndromes or revascularization, stable angina, heart failure) *[IB]*.
Weight Management	Assess body mass index and/or waist circumference on each visit, and consistently encourage weight maintenance/reduction through an appropriate balance of physical activity, caloric intake and formal behavioral programs when indicated to achieve and maintain a body mass index between 18.5 and 24.9 kg/m^2 *[IB]*. If waist circumference (measured horizontally at iliac crest) is ≥ 35 inches in women and ≥ 40 inches in men, initiate lifestyle change and consider treatment strategies for metabolic syndrome as indicated *[IB]*. Initial goal of weight loss strategy should be to reduce body weight 10% from baseline. With success further weight loss can be attempted if indicated through further assessment *[IB]*.
Nutrition	Achieve and maintain ideal body weight by limiting foods high in calories and low in nutrient density, including those high in sugar, such as soft drinks and candy. Eat a variety of fruits, vegetables, legumes, nuts, soy products, low-fat dairy products, and whole grain breads, cereals and pastas. Eat baked or broiled fish at least twice per week *[IIB]*.

	Choose oils and margarines low in saturated fats and trans fat and high in omega-3 fat *[IB]*, such as canola, soybean, walnut and flaxseed oils, including those fortified with stanols and sterols. Monounsaturated fats like olive oil are also preferred over saturated fats. Avoid foods high in saturated and trans fats, such as red meat, whole milk products, and pastries. Limit intake of saturated fats to less than 7% of daily calories, trans fatty acids and cholesterol to less than 200 mg per day *[IB]*. Limit alcohol to no more than 2 drinks per day (men) or 1 drink per day (women). Eat less than 6 g of salt or less than 2400 g of sodium per day.
Immunizations	Influenza vaccination annually (inactivated, injectable) *[IB]*. Pneumococcal polysaccharide vaccine *[IB]*.

Table 2. Supplements: Summary of Recommendations by American College of Cardiology (ACC) Foundation Complementary Medicine Expert Consensus Panel

Can be recommended:

- Omega-3 supplements 1-2 g per day if insufficient intake from fish
- Stanol / sterol ester margarines (2 g per day)
- Soluble fiber (5 to 20 g per day)
- Soy foods and soy protein (equivalent to 25 g of soy protein daily)

Possibly useful for indications noted

- Moderate alcohol intake for cardiovascular risk reduction, with caution to avoid in patients with history of dependency
- Tea (1-2 c) for cardiovascular risk reduction
- Recommended dietary intake of magnesium (men 420 mg, women 320 mg daily)

Cannot recommend at this time (for some individuals in some situations, probably not harmful)

- Folic acid if homocysteine not elevated for vascular disease
- Garlic for lipid lowering
- Soy isoflavones for lipid lowering

- L-arginine supplementation for nutritional support
- Coenzyme Q10 (CoQ10) for nutritional support
- Hawthorn for mild heart failure
- Ginkgo biloba for peripheral vascular disease
- Horse-chestnut seed extract (HCSE) for peripheral vascular disease

Not recommended (possibly harmful)

- Levels exceeding the upper tolerable limits for vitamins C (2,000 mg/day) and E (1,000 mg/day); and beta-carotene supplementation not recommended; limit to food sources.
- Ephedra, oleander and other herbal/ botanicals with well-defined contraindications to cardiovascular drug and or cardiovascular (CVD) conditions

Note: Detailed tables of interactions of supplements are available in the American College of Cardiology Foundation clinical consensus document on Integrating Complementary Medicine into Cardiovascular Medicine.

Definitions:

Levels of Evidence

A. Randomized controlled trials
B. Controlled trials, no randomization
C. Observational trials
D. Opinion of expert panel

Strength of Recommendation

I = Generally should be performed

II = May be reasonable to perform

III = Generally should not be performed

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

Conclusions were based on prospective randomized clinical trials if available, to the exclusion of other data; if randomized controlled trials were not available, observational studies were admitted to consideration. If no such data were available for a given link in the problem formulation, expert opinion was used to estimate effect size.

The type of evidence supporting the recommendations is specifically stated for each recommendation (see 'Major Recommendations' field).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Reduced risk of subsequent cardiac events and mortality
- Prevention of coronary artery disease and other vascular disease

POTENTIAL HARMS

- Levels exceeding the upper tolerable limits for vitamins C (2,000 mg/day) and E (1,000 mg/day); and beta-carotene supplementation not recommended; limit to food sources.
- The Food and Drug Administration (FDA) issued an alert regarding serious neuropsychiatric symptoms occurring in patients taking varenicline; however, it still continues to be considered first line therapy. Clinicians should elicit information on their patients' psychiatric history and monitor them for changes in mood or behavior on therapy.
- There are limited data on the safety of "triple therapy" with aspirin, clopidogrel and warfarin, leading to significant concerns about the risk of bleeding.
- It should be noted that in the acute setting, the routine use of intravenous (IV) beta blockers for all patients is no longer recommended, as it may be harmful to administer them to those with contraindications to beta blockade, signs of heart failure or low output state, or other risk factors for cardiogenic shock.
- Caution when using angiotensin-converting enzyme inhibitors (ACE-I), angiotensin-receptor blockers (ARBs), and aldosterone receptor blockers in combination due to risk for hyperkalemia
- Recent systematic reviews and meta-analyses have raised concerns about rosiglitazone increasing risks of myocardial infarction and heart failure, with no increased risk in cardiovascular mortality or all cause mortality demonstrated.
- The selective cyclooxygenase-2 inhibitors (COX-2 inhibitors) and other nonselective non-steroidal anti-inflammatory drugs (NSAIDS) have been associated with increased cardiovascular risk.
- the long-term use of NSAIDS or aspirin also increases the risk of gastrointestinal bleeding, and high dose acetaminophen can cause hepatic toxicity.
- If an NSAID must be used, available evidence suggests that the selective COX-2 inhibitors pose a greater risk than the nonselective ones, so therapy with a nonselective NSAID such as naproxen should be used initially.
- Of note, some herbal remedies can have cardiotoxic properties, some may lower serum potassium, and some may interact with cardiovascular drugs.

CONTRAINDICATIONS

CONTRAINDICATIONS

- Ephedra, oleander and other herbal/botanicals have well-defined contraindications to cardiovascular drug and or cardiovascular disease (CVD) conditions.
- Nicotine transdermal formulations are contraindicated in patients with arrhythmias, worsening angina, severe angina, and within 2 weeks of myocardial infarction. Use nicotine supplementation with caution in patients with coronary artery disease (CAD).
- Resins are relatively contraindicated in patients with triglycerides over 200 mg/dL.
- Influenza vaccine is contraindicated in patients with severe egg allergy or previous allergy/anaphylaxis to influenza vaccine and cautioned with previous Guillian-Barré syndrome.
- Avoid moderate alcohol intake for cardiovascular risk reduction in patients with history of dependency.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

These guidelines should not be construed as including all proper methods of care or excluding other acceptable methods of care reasonably directed to obtaining the same results. The ultimate judgment regarding any specific clinical procedure or treatment must be made by the physician in light of the circumstances presented by the patient.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Patient Resources
Staff Training/Competency Material

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Staying Healthy

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

University of Michigan Health System. Secondary prevention of coronary artery disease. Ann Arbor (MI): University of Michigan Health System; 2009 Mar. 11 p.

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2009 Mar

GUIDELINE DEVELOPER(S)

University of Michigan Health System - Academic Institution

SOURCE(S) OF FUNDING

University of Michigan Health System

GUIDELINE COMMITTEE

Secondary Prevention of Coronary Artery Disease Team

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Team Leader: Denise Campbell-Scherer, MD, PhD, Family Medicine

Team Members: R. Van Harrison, PhD, Medical Education; Robert V. Hogikyan, MD, MPH, Geriatric Medicine; Mark J. Lowell, MD, Emergency Medicine; Thomas P. O'Connor, MD, General Medicine; Brahmajee K. Nallamothu, MD, Cardiovascular Medicine

Guidelines Oversight Team: William E. Chavey, MD; R. Van Harrison, PhD; Connie J. Standiford, MD

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

The University of Michigan Health System endorses the Guidelines of the Association of American Medical Colleges and the Standards of the Accreditation Council for Continuing Medical Education that the individuals who present educational activities disclose significant relationships with commercial companies whose products or services are discussed. Disclosure of a relationship is not intended to suggest bias in the information presented, but is made to provide readers with information that might be of potential importance to their evaluation of the information.

Team Member	Relationship	Company
Denise Campbell-Scherer, MD, PhD	(none)	
R. Van Harrison, PhD	(none)	
Robert V. Hogikyan, MD, MPH	Shareholder	Pfizer
Mark J. Lowell, MD	(none)	
Thomas P. O'Connor, MD	(none)	
Brahmajee K. Nallamouth, MD	(none)	

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available for download (in Portable Document Format [PDF]) from the University of Michigan Health System Web site.

AVAILABILITY OF COMPANION DOCUMENTS

Continuing Medical Education (CME) information is available from the University of Michigan Health System Web site.

PATIENT RESOURCES

The following is available:

- Coronary artery disease. University of Michigan Health System; 2005 Oct. Various p. Available from the University of Michigan Health System Web site.

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC STATUS

This NGC summary was completed by ECRI Institute on August 17, 2009. The information was verified by the guideline developer on September 11, 2009.

COPYRIGHT STATEMENT

This NGC summary is based on the original guideline, which is copyrighted by the University of Michigan Health System (UMHS).

DISCLAIMER

NGC DISCLAIMER

The National Guideline Clearinghouse™ (NGC) does not develop, produce, approve, or endorse the guidelines represented on this site.

All guidelines summarized by NGC and hosted on our site are produced under the auspices of medical specialty societies, relevant professional associations, public or private organizations, other government agencies, health care organizations or plans, and similar entities.

Guidelines represented on the NGC Web site are submitted by guideline developers, and are screened solely to determine that they meet the NGC Inclusion Criteria which may be found at http://www.guideline.gov/about/inclusion.aspx .

NGC, AHRQ, and its contractor ECRI Institute make no warranties concerning the content or clinical efficacy or effectiveness of the clinical practice guidelines and related materials represented on this site. Moreover, the views and opinions of developers or authors of guidelines represented on this site do not necessarily state or reflect those of NGC, AHRQ, or its contractor ECRI Institute, and inclusion or hosting of guidelines in NGC may not be used for advertising or commercial endorsement purposes.

Readers with questions regarding guideline content are directed to contact the guideline developer.

Copyright/Permission Requests

Date Modified: 10/5/2009